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TITLE: COMPOSITE VIBRATOR UNIT

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INVENTOR-INFORMATION:
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SEIKO INSTR & ELECTRONICS LTD N/A

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ABSTRACT:

PURPOSE: To make it possible to pack elements in the same container with excellent space efficiency, and also to manufacture a unit which is miniature and thin at low cost, by stacking plate materials.

CONSTITUTION: This unit consists of two vibrators 1 and 2, covers 3 and 4, and middle frames 5 and 6. After crystals are worked into thin films of 50∼100μ for vibrators 1 and 2, frame 7 serving as part of a container and tuning-fork type vibrator part 8 are formed by photo-processing. To form covers 3 and 4 next, a transparent material such as glass is etched to a fixed size in the same photo process as the crystal. Middle frames 5 and 6 are

rectangular frames of a glass material like covers 3 and 4; sealing thin film
14 on the frame is formed on one surface of cover 3, and sealing thin film 15
is on one surface of middle frame 5. To pack them, cover 4, middle frame 6,
vibrators 2 and 1, and middle frame 5 are sequentially stacked and sealing
members such as glass powder sandwiched in respective clearances (A solder
plate is sandwiched between middle frame 5 and cover 3.) is heated for sealing.